DEPARTMENT OF THE ARMY
PUBLIC WORKS BUSINESS CENTER
FORT BRAGG GARRISON COMMAND (AIRBORNE)
INSTALLATION MANAGEMENT AGENCY
FORT BRAGG, NORTH CAROLINA

ENVIRONMENTAL ASSESSMENT
AND
DRAFT FINDING OF NO SIGNIFICANT IMPACT
FOR
UPGRADING HUTAFF LAKE DAM
FORT BRAGG MILITARY RESERVATION, NORTH CAROLINA

15 August 2003

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In compliance with the
National Environmental Policy Act of 1969

SIGNATURES

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FORT BRAGG MILITARY RESERVATION, NORTH CAROLINA

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ACRONYMS AND ABBREVIATIONS

AR	Army Regulation
dBA	A-Weighted Decibels
dBC	C-Weighted Decibels
DNL	Day-night Level
EA	Environmental Assessment
ENMP	Endangered Species Management Plan
EO	Executive Order
FB REG	Fort Bragg Regulation
FNSI	Finding of No Significant Impact
GPS	Global Positioning System
NAAQS	National Ambient Air Quality Standards
NCDENR	North Carolina Department of Environment and Natural Resources
PWBC	Public Works Business Center
RCW	Red-Cockaded Woodpecker
TNC	The Nature Conservancy
UXO	Unexploded Ordnance

SUMMARY

This Environmental Assessment (EA) provides an analysis of the environmental and socioeconomic effects of upgrading Hutaff Lake dam located on Fort Bragg Military Reservation in Cumberland County, North Carolina. Implementing this action would upgrade the dam to meet current engineering and safety standards. Two alternatives to the Proposed Action are considered. These are the Demolition Alternative of permanently breeching the dam and draining the lake and the No Action Alternative of retaining the dam with no upgrade. The No Action Alternative provides the baseline for forecasting the effects of adopting the Proposed Action. The EA addresses the potential environmental impacts of these actions, concludes that the Proposed Action is environmentally acceptable, and recommends that a draft Finding of No Significant Impact be published.

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UPGRADING HUTAFF LAKE DAM
FORT BRAGG MILITARY RESERVATION, NORTH CAROLINA

Section 1.0: PURPOSE AND NEED FOR THE PROPOSED ACTION.

1.1 Introduction.

1.1.0 History. Fort Bragg intends to upgrade the dam at Hutaff Lake, a 17-acre lake located on Fort Bragg, North Carolina. The lake is not intensively managed for recreational boating and fishing and is therefore not fertilized or limed. The lake is managed from the standpoint that fisheries surveys are conducted every five years. The map included as Appendix A specifies the location of the lake. Hutaff Lake contains approximately 16,331,700 gallons (50.12 acre-feet) at normal pool elevation (196.8 feet above mean sea level). The dam was constructed privately before Fort Bragg acquired the land upon which the lake is found, and therefore the responsibility for dam inspection rests with the State of North Carolina Department of Environment and Natural Resources (NCDENR). Fort Bragg's Public Works Business Center (PWBC) visually inspected Hutaff Lake dam and conducted a dam break analysis. The PWBC concluded that the dam is a high hazard dam because it is not in compliance with operational and safety standards as stated in The North Carolina Dam Safety Law of 1967, as amended through 1995. This law provides "for the certification and inspection of dams in the interest of public health, safety, and welfare, in order to reduce the risk of failure of dams; to prevent injuries to persons, damage to downstream property and loss of reservoir storage; and to ensure maintenance of minimum stream flows of adequate quantity and quality below dams". The NCDENR concurs with the conclusion of the PWBC (See Appendix D). The options are to upgrade the dam, demolish the dam, or to do nothing.

1.1.1 Requirement for Environmental Documentation. Environmental Analysis of Army Actions; Final Rule (32 CFR Part 651, 29 March 2001) implements the National Environmental Policy Act of 1969 and requires Army installations to consider the environmental impacts of a proposed action and its alternatives prior to acting. While routine maintenance of erosion control and storm water control structures requires a Record of Environmental Consideration; military construction that exceeds five contiguous acres, or actions that could cause significant increase in soil erosion or affect prime or unique farmland (off Army property), wetlands, floodplains, aquifers or other water supplies, requires an Environmental Assessment (EA) if there is no categorical

exclusion for the action. No categorical exclusion applies to the Proposed Action; therefore, an EA is necessary to assess potential environmental impacts of the Proposed Action.

1.1.2 General Objectives. The objectives of the Proposed Action are:

- Public safety. Eliminate the hazard of a sudden dam breech to property and to persons living downstream of the dam.
- Natural Resources Management. Properly manage the lake and its resources.
- Environmental Compliance. Remain in compliance with all applicable environmental laws, regulations, and policies.

1.2 Purpose and Need. There is a compelling need and a regulatory requirement set by the NCDENR to ensure that dams meet specific operational and safety standards and do not pose a danger to life or property as stated in the above-referenced state law. The Hutaff Lake dam may suffer a dangerous breech if it is not upgraded. The dam and emergency spillway are heavily eroded due to recent overtopping during storms. It is very likely that future storm events could cause the dam to collapse. This situation is considered to be high hazard due to the potential to breach Loraine Lake Dam and the associated flooding of adjacent resident developments located immediately off post, approximately 0.5 miles downstream. The purpose of the Proposed Action is to eliminate the threat to life and property located downstream that may result from a sudden collapse of the dam.

1.3 Scope. The scope of this EA is limited to assessing the environmental and socioeconomic effects resulting from implementing the Proposed Action or its alternatives. The proposed action would be implemented in 2003.

Section 2.0: DESCRIPTION OF THE PROPOSED ACTION.

Proposed Action. Fort Bragg proposes to upgrade the dam located at Hutaff Lake to meet current engineering and safety standards. The lake would be lowered to a safe level below the work level (lowered about 8-9 feet to approximately 188 feet above mean sea level). The water would be either pumped out or eliminated thru the existing drainage system at a rate of one foot every 24 hours to minimize sloughing of upstream embankments, and sedimentation of downstream areas. While the lake is drained and during the construction of the new dam, the normal outflow from Hutaff Lake will continue through a pipe into Stewart's Creek to minimize sedimentation and erosion and to maintain the downstream environment. The existing water control structure and spillway would be replaced. A walkway and security fence would be

installed for the new water control structure and a low-level gate valve installed. A new emergency spillway and a larger discharge drainpipe will be installed. A concrete boat ramp and graveled access road will be constructed. A State-approved Soil Erosion Control Plan would be required not only because the construction site is more than one acre in size, but also because the designers must control runoff coming from the 17-acre lake basin drained during construction. Placement of the discharge pipe would be allowed under the provisions of Nationwide Permit 14. No significant adverse environmental impacts are anticipated from implementing this alternative other than the effect of the project on a state threatened species known as loose watermilfoil. The Proposed Action will employ the mitigation efforts of Fort Bragg's botanist to ensure every measure possible is taken to minimize the impact of the Proposed Action on the milfoil. Also, the Construction Management Division of the PWBC will enforce strict construction deadlines for the purpose of constructing as much of the dam as possible during the dormant season of the milfoil.

Section 3.0: ALTERNATIVES CONSIDERED.

3.1 Alternatives Eliminated from Detailed Analysis. None.

3.2 Alternatives to the Proposed Action. Two alternatives to the proposed action were identified and considered in detail. These are the Demolition Alternative and the No Action Alternative. No significant adverse impacts are anticipated from the implementation of the Proposed Action Alternative. The Demolition Alternative represents an adverse impact to a North Carolina-threatened species of plant, loose watermilfoil. The loose watermilfoil located in Hutaff Lake represents the largest population of the species in North Carolina and also represents the northernmost location of this southern species. The loose watermilfoil population in Hutaff Lake will be lost if the dam is permanently breached either through Army action or through sudden collapse. Potentially significant adverse impacts could occur as a consequence of adopting the No Action Alternative if the dam were to suddenly collapse.

3.2.1 Demolish the Dam (Demolition Alternative). The dam would be permanently breeched and the lake drained. Draining the lake would result in the permanent loss of the lake's aquatic habitat and its eventual conversion to a mix of upland, wetland, and streamside habitat. However, because the lake represents a small percentage of the aquatic habitat available in the region, and because the site would be returned to a stream environment, demolition would change, but not significantly affect environmental quality. The most significant environmental impact

would be the loss of the North Carolina's largest growth population of the State-threatened plant, loose watermilfoil. Permanently draining the lake would eliminate boating and fishing on Hutaff Lake; however, the loss would not be considered significant because the lake is not intensively managed for this purpose.

3.2.2 Retain the Dam (No Action Alternative). Implementing this alternative would retain the dam without upgrade. The dam poses a potential hazard to communities located immediately downstream in its current condition. A sudden failure of the dam could result in loss of life and damage to property. In addition, failure to either upgrade or breech the dam would put Fort Bragg out of compliance with the Federal Clean Water Act and North Carolina's Sedimentation Control Act. There is no advantage to keeping the dam unless it is upgraded. Fort Bragg's PWBC has inspected the dam and found it to be unsafe; NCDENR concurred with PWBC's evaluation. This alternative would not satisfy Fort Bragg's immediate need to eliminate the hazard to areas downstream should the dam fail. Implementing this alternative would jeopardize public safety. Adverse environmental impacts resulting from flash flood damage are anticipated should the dam suddenly fail.

Section 4.0: AFFECTED ENVIRONMENT.

4.1 Location Description.

4.1.1 Location. Hutaff Lake dam is located on Stewart's Creek, Cumberland County, North Carolina, in the vicinity of military grid coordinates PU 803841. Stewart's Creek flows into Loraine Lake, then into Beaver Creek, and eventually into the Cape Fear River. The dam is entirely on Fort Bragg, but the lake's northern boundary crosses onto privately owned land.

4.1.2 General Climatic Conditions. Located in the Sandhills region of the Atlantic Coastal Plain, the climate and related hydrology of Fort Bragg are influenced by proximity to both the Atlantic Ocean and the Piedmont Plateau. The climate of Fort Bragg is characterized by long, hot summers and relatively short, mild winters. The area is sheltered from the severity of winter by the Appalachian Mountains. Average annual precipitation in the area is approximately 47 inches. The major portion of summer precipitation is received in the form of convectional thunderstorms and occasional tropical depressions. Mid-latitude, low-pressure cells preceding cold fronts are the major source of precipitation in the late fall and early spring. The climatic conditions expected for the proposed project site are consistent

with those described for Fort Bragg and the Sandhills region of North Carolina by the National Weather Service.

4.1.3 Geography and General Landscape. Broad sandy ridges and long, less sandy side slopes, characterize the Sandhills. Many streams have cut deeply into the sediments, creating a much hillier landscape than in the rest of the Coastal Plain. The terrain along Stewart's Creek and in the vicinity of Hutaff Lake is wooded and gently rolling with elevations ranging from 50-80 meters above sea level. Fort Bragg roads leading to the lake are unimproved dirt roads.

4.2 Land Use. The area of Fort Bragg where Hutaff Lake is located consists largely of mixed pine and hardwood forest. Outlying areas of the military reservation are managed for both silviculture and military training. The lake is used for recreational boating and fishing, but is not intensively managed. Medium-density off-post residential housing areas are located along the Fort Bragg boundary surrounding the lake. The lake is not accessible by improved roads from either Fort Bragg or from off-post, only unimproved dirt roads.

4.3 Air Quality. Fort Bragg manages its air resources in compliance with its Title V Air Quality Permit. The Fayetteville-Fort Bragg area is an air quality attainment zone for all pollutants. National Ambient Air Quality Standards (NAAQS) for ozone have been exceeded during several recent summers. Increased ozone levels at near ground level are taken as an indicator of poor air quality. Because this is a perennial problem, North Carolina is developing a State Implementation Plan to govern compliance with the NAAQS standards for ozone in Cumberland County.

4.4 Environmental Noise. Fort Bragg is a fully operational military installation with the mission of training soldiers for war. Environmental noise produced by normal daily operations is assessed under the Environmental Noise Management Program (ENMP) and Air Installation ENMP programs. Zones of ambient noise are identified by predictive modeling and field checked with noise monitors. Land use planners use this information to guide land development both on and off post.

The day-night level (DNL) is the primary description used to assess relative noise levels. This represents a weighted sound level over a 24-hour period, with a 10-decibel penalty added for nighttime noise levels. The DNL is accepted as the unit for use in quantifying human annoyance to general environmental noise. Noise from transportation and continuous sources is assessed using the A-weighted DNL. Noise for impulsive sources such as

that resulting from artillery or demolition activities is assessed using the C-weighted DNL. The percentages of the population annoyed by various noise levels, decibel parameters for A-weighted (dBA) and C-weighted (dBC) noise, and guidance for noise sensitive land uses are listed below:

ZONE	POPULATION ANNOYANCE	DECIBEL RANGE dBA	dBC	LAND USE GUIDANCE
I	<15%	<65	<62	Acceptable
II	15-39%	65-75	62-70	Normally Unacceptable
III	>39%	>75	>70	Unacceptable

For purposes of this EA, the A-weighted DNL is most significant for evaluating the effects of the Proposed Action. Hutaff Lake is located in a quiet rural area. The area near the lake is classed as Zone I, an area considered to be acceptable for noise sensitive land uses.

4.5 Soils. Soils on Fort Bragg are generally sandy and easily eroded. Soil conservation is a high priority in any area with insufficient ground cover. Several major soil associations are found in Cumberland County on Fort Bragg. Only one, Wagram-Faceville-Rains, is included in the area of the proposed project. This association is found in upland areas dominated by nearly level to gently sloping, well-drained soils that have loamy or clayey subsoil. The lake and dam are found on the narrow floodplain of Stewart's Creek, and include the following mapped soils:

Johnston loam. Consists of nearly level, very poorly drained soil along major drainage ways and are subject to frequent flooding. These soils are found on flood plains and mostly in woodland areas. The seasonal high water table is at or above the surface throughout most of the year. This is the soil type found immediately adjacent to Stewart's Creek.

Vaucluse loamy sand, 8 to 15 percent slopes. Consists of well-drained soil on side slopes of uplands. These soils are mostly located in woodland areas. The hazard of erosion is severe where the soil is exposed. This is the soil type found surrounding most of Hutaff Lake.

Blaney loamy sand, 8 to 15 percent slopes. Consists of well-drained soil found on side slopes of uplands, but also in long narrow bands above and parallel to most streams in the sandhills. These soils are mostly located in woodland areas. Frequently a perched water table is above the brittle subsoil for brief periods after heavy rains. The hazard of erosion is severe where

the soil is exposed. Damming streams flowing through areas of Blaney soils frequently makes recreational lakes.

Candor sand, 1 to 8 percent slopes. Consists of somewhat excessively drained soil found in broad areas, and to a lesser extent, on rounded side slopes of uplands. The hazard of erosion is moderate. Available water capacity of these soils is very low.

See the map included as Appendix D for location of soils found along Stewart's Creek and surrounding Hutaff Lake.

4.6 Water Resources. The Army's water resources management program focuses on compliance with all legally applicable Federal, State, and Local laws and regulations regarding the management of all water resources including, wetlands, estuaries, watersheds and groundwater.

4.6.1 Wetlands. In general, the northeastern area of Fort Bragg is an upland area. Soils are sandy and well drained. Wetlands are found along stream bottoms, in the headwaters of small streams, and around lakes. There are numerous hillside drains and seeps throughout the area. These qualify as jurisdictional wetlands as defined by the U.S. Army Corps of Engineers. These hillside drains and seeps are often discontinuous with other wetlands found along streams. The 100 year (Zone A) and transitional 100 to 500 year (Zone B) areas are found along creeks, and streams. These include the areas along Stewart's Creek and its tributaries. Most of the northeast area lies outside the 500-year flood plain (Zone C). Flood zones are shown in the Federal Emergency Management Agency's flood zone maps of Cumberland County. The soil survey of Cumberland and Hoke Counties provides detailed information using 1:24,000 scale orthophotoquads showing the locations of hydric soils associated with wetland terrain. The general locations of rivers, streams, lakes, ponds, and major wetland areas are clearly shown in both 1:24,000 and 1:50,000 scale topographic maps of the area. Hutaff Lake has small areas of adjacent wetlands. Other wetlands are located along Stewart's Creek downstream of the dam. This project would impact approximately 0.473 acres of wetlands adjacent to the dam. See the map included as Appendix B for wetland impact area. Nationwide Permit 12 allows for such impacts to wetlands when upgrading existing structures.

4.6.2 Groundwater Contamination. There is no indication of groundwater contamination in the area. No land uses are planned which would be expected to contaminate groundwater. Therefore, the Army does not expect to encounter any groundwater contamination problems in the vicinity of Hutaff Lake.

4.6.3 Soil Conservation. The predominant soil types on Fort Bragg are sandy and easily eroded. The limitations imposed by these soil types make keeping soil disturbance to a minimum a top priority in order to prevent further erosion and stream sedimentation. Best management practices as defined by the NCDENR must be followed to prevent erosion and consequent damage to endangered species habitat or sedimentation of streams and wetland areas. Projects over one acre require a State-approved Soil Erosion Control Plan. All construction, operation, and maintenance activities involving land disturbance must consider and comply with soil conservation measures and the post's Storm Water Management Permit in their planning and execution. Fort Bragg's soil conservationist reviews all projects for compliance. The project to upgrade the dam is more than one acre in size. Draining the lake to a safe level in order to allow this work would expose most of the 17-acre basin. The State approved Soil Erosion Control Plan would incorporate measures to control sediment from this source.

4.7 Biological Resources. Management of wildlife and wildlife habitat complies with the provisions of the Endangered Species Management Plan, and the Integrated Natural Resources Management Plan, which are incorporated herein by reference. Consultation with the U.S. Fish and Wildlife Service will not be required since there are no federally threatened or endangered species located in the vicinity of Hutaff Lake.

4.7.1 Habitat Features. The dominant forest species on Fort Bragg are longleaf pine (*Pinus palustris*) and loblolly pine (*Pinus taeda*). Understory vegetation consists of turkey oak (*Quercus laevis*) on xeric sites, with other oaks on less xeric sites; wiregrass (*Aristida stricta*) dominates the herb layer with other common species. The plant and animal communities vary little from those found throughout the Atlantic Coastal Plain. The overall poor quality of the soils has, in general, limited the natural vegetation to a longleaf pine-turkey oak-wire grass covering. The area surrounding the dam and its lake are typical streamside and longleaf pine-wiregrass habitat on Fort Bragg.

4.7.2 Current Species and Habitat. In 1992, The Nature Conservancy's (TNC) Sandhills Field Office conducted a floral inventory of Fort Bragg, which documented over 1,100 species. Several of these are endemic to the Sandhills region or have their only State occurrence on the installation. Most of these species evolved in fire-maintained communities. These natural communities are characterized by periodic burning either by wildfire or, in managed sites, by prescribed fire. The plant and animal species have adapted to survive fire and are dependent upon it to maintain the conditions necessary for their survival. TNC inventory identified 33 natural communities and variants on

Fort Bragg representing a broad array of topographic, climatic and hydrologic interactions. Other inventories have identified 100 avian, 67 mammalian, and 58 reptilian and amphibian species on Fort Bragg. Large game includes black bear (*Ursus americanus*), eastern wild turkey (*Meleagris gallopavo silvestris*), and white-tailed deer (*Odocoileus virginianus*). Other species include beaver (*Castor canadensis*), opossum (*Didelphis virginianus*), bobcat (*Lynx rufus*), muskrat (*Ondatra zibethica*), raccoon (*Procyon lotor*), and eastern fox squirrel (*Sciruus niger*). Among upland game birds the common bobwhite quail (*Colinus virginianus*) is found. Migratory game birds include the wood duck (*Aix spousa*) and the mourning dove (*Zenaida macroura*). Streams and ponds include inland game fish such as the chain pickerel (*Esox niger*), black bass (*Micropterus salmoides*), redbreast sunfish (*Lepomis auritus*), bluegill (Lepomis machrochirus), redear sunfish (Lepomis microlophus), and the channel catfish (*Ictalurus punctatus*).

Hutaff Lake was originally managed as a bass, bluegill, and channel catfish lake. However, it is not considered an intensively managed lake. Only small boats are allowed on the lake and the majority of the biomass is rough fish, not game fish. The amount of game fish currently located in Hutaff Lake is unknown. After the Proposed Action is complete, Fort Bragg's Wildlife Branch will evaluate the game fish. The lake will be stocked and surveys will be taken periodically to determine productivity after the dam is upgraded and the lake is refilled.

All endangered species sites have been precisely located using the Global Positioning System. The boundaries of endangered plant sites are permanently marked with yellow diamond-shaped signs warning "ENDANGERED PLANT SITE - OFF LIMITS - NO MILITARY ACTIVITY - FB REG 350-6". Aluminum tags with identifying numbers and two broad white bands currently mark all Red-cockaded woodpecker (RCW) cavity trees. The 200-foot buffer zones surrounding the RCW clusters on Fort Bragg are marked with signs warning, "ENDANGERED SPECIES SITE - DO NOT DISTURB - RESTRICTED ACTIVITY - RCW - FB REG 350-6". There are no listed federally endangered species located in the vicinity of the dam. The nearest RCW clusters are found approximately 2000 meters north (Cluster 96) of the dam and approximately 1500 meters west (Cluster 406) of the dam.

There is a rare plant species, loose watermilfoil (*Myriophyllum laxum*), located in Hutaff Lake. Loose watermilfoil is a State Threatened Species (meaning it is likely to become endangered) and a Federal Species of Concern (meaning it is likely to become threatened or endangered, but having no protected federal legal status). This species is a perennial aquatic plant that occurs in shallow water areas of natural ponds, blackwater streams,

impoundment, drainage ditches and canals. Three populations of loose watermilfoil occur on Fort Bragg. Hutaff Lake supports not only the largest population (thousands of plants) on Fort Bragg, but also the largest population in North Carolina and represents the northern most range of this southern species. Also, this population is one of the few located in the North Carolina Sandhills region. Threats to this species include loss or change of habitat due to widely fluctuating water levels and drainage of its habitat. No research has been conducted to this date evaluating the effects of fluctuating water levels, or habitat drainage, on this species' numbers and germination potential.

See map included as Appendix C for locations of nearest RCW clusters and location of loose watermilfoil.

4.8 Cultural Resources Management. Fort Bragg manages cultural resources through its Cultural Resources Program in accordance with the Fort Bragg Integrated Cultural Resources Management Plan, completed in 2001, and relevant federal legislation such as the National Historic Preservation Act, Archeological Resources Protection Act, and the Native American Graves Protection and Restoration Act as well as Army Regulation 200-4, Historic Preservation. Fort Bragg currently manages a total of over 2,800 archeological sites, two historic districts, six historic structures, and 27 historic cemeteries. Both of the historic districts, five buildings, and approximately 200 archeological sites are considered to be eligible for listing on the National Register of Historic Places (NRHP). One historic structure, the antebellum period, Long Street Presbyterian Church, is listed on the NRHP. The Hutaff Lake Dam is not a historic structure, nor is it located within a historic district. It is not within the view shed of either the Old Post or the Overhills Historic Districts.

4.9 Human Health and Safety.

4.9.1 Site Categorization. The relative potential for an environmental hazard on a parcel of land is categorized as Category I (non-hazardous), II (potentially contaminated) or III (contaminated). Hutaff Lake is and would remain a Category I (non-hazardous) site. There is no history to indicate that reportable quantities of hazardous materials were ever associated with Hutaff Lake or the dam. Site inspections have revealed no evidence of contamination. The post has no reason to expect that hazardous materials would be encountered on the property.

4.9.2 Soil Contamination/Stressed Vegetation. There is no visual evidence of soil contamination nor is there any stressed vegetation evident in the vicinity of Hutaff Lake. Therefore the Army does not expect to encounter any contamination problems that

would have been indicated by visible soil contamination or stressed vegetation.

4.9.3 Unexploded Ordnance (UXO). No UXO is evident on the property. The Army acquired the Hutaff Lake area following World War II. It forms part of the explosive safety zone for the post's ammunition supply point. Since the land is not used for training, the Army does not expect to encounter any problems from this source.

4.9.4 Protection of Children. The concept of protecting children arises out of a growing body of scientific knowledge, which demonstrates that children may suffer disproportionately from environmental health and safety risks. To address these concerns, Executive Order (EO) 13045, *Protection of Children from Environmental Health Risks and Safety Risks* was issued. It requires federal agencies to identify and assess environmental health and safety risks that may disproportionately affect children and to ensure that its policies, programs, activities, and standards address disproportionate risk to children that result from environmental health or safety risks. There are no children living in areas located immediately downstream of Hutaff Lake within the 100-year flood zone that meet the definition in EO 13045; there are no mobile homes or substandard housing located in these areas.

4.10 Socioeconomic Issues.

4.10.1 Demographics. The Fort Bragg area has experienced substantial growth over the past two decades. Further population growth is expected, largely due to the presence of Fort Bragg. The installation's substantial contribution to the local economy encourages economic activity and expansion in areas near the post. The availability of military benefits such as health services, the commissary and Post Exchange draws military retirees to the area, adding to the need for expansion and development in the surrounding civilian community. Urban encroachment forces Fort Bragg to carefully consider how its operations affect the surrounding area and, just as importantly, how land use around the installation affects Fort Bragg.
In Cumberland County most land bordering Fort Bragg is already developed for residential use. In Hoke County, south of the installation boundary, development is not as wide spread, but is growing. Moore County, the home of Southern Pines and Pinehurst, an area undergoing substantial growth, is located to the west of the installation. The Woodlake subdivision, near the northern boundary of the installation, is substantially developed.
Harnett County currently has no zoning laws in place for the southern portion of the county allowing mobile homes to

constitute a substantial, and growing percentage of residential land use near Fort Bragg. This is a problem due in part to the noise impact from operations at Fort Bragg and Pope Air Force Base. Mobile homes offer less noise attenuation in comparison to other types of dwellings. Accordingly land use incompatibility issues could arise in Harnett County and other areas where mobile housing is found near the installation.

4.10.2 Environmental Justice. The concept of environmental justice is based on the premise that no segment of the population should bear a disproportionate share of adverse human health or environmental effects. To address these concerns, EO 12898, *Federal Actions to Address Environmental Justice in Minority and Low Income Populations* was issued. It requires each federal agency to "make the achievement of environmental justice part of its mission by identifying and addressing disproportionately high and adverse human health and environmental effects on minority and low-income populations." There are no low income or minority populations living in areas immediately downstream of Hutaff Lake within the 100-year flood zone that meet the definition of EO 12898; there are no mobile homes or substandard housing located in these areas.

4.11 Hazardous and Toxic Materials or Waste. The objectives for hazardous and toxic material and waste management programs are to ensure compliance with all applicable laws and regulations, eliminate or minimize hazards to human health and damage to the natural environment, and to save money by implementing waste management procedures which conserve resources in such a way as to protect public health and safety.

There are no hazardous materials mixing or storage sites on the property nor have any hazardous waste sites been identified. Therefore, the Army does not expect to encounter any contamination problems. However, should any hazardous substance spill occur during construction, the Army would handle the spill under Fort Bragg's Spill Contingency Plan and Spill Prevention, Control, and Countermeasure Plan.

Uncontaminated demolition debris would be disposed of in a permitted construction and demolition debris landfill located on Fort Bragg. Ordinary trash would be collected in dumpsters on site, emptied at the Fort Bragg transfer station and trucked out to a permitted regional landfill.

4.12 Cumulative Effects. These result from the incremental effect of separate actions on the environment added to past, present and reasonably foreseeable actions regardless of which agency or person undertakes these actions. Cumulative impacts can accrue from individually minor but collectively significant

actions taking place over an extended period of time. Taken in sum all environmental damage is incremental occurring one action at a time. Determining the significance of collective actions requires an understanding of their effect on the larger environment. Upgrading the dam would maintain the character of the site and prevent potential flood damage downstream. No other actions comparable to the Proposed Action are known in the immediate vicinity.

Section 5.0: ENVIRONMENTAL AND SOCIOECONOMIC CONSEQUENCES.

5.1 Land Use.

5.1.1 Effects of the Proposed Action. Implementing this action would neither adversely affect nor significantly alter land use on Fort Bragg. The use of the lake would be unchanged. The lake would be completely drained. The dam would be upgraded and the water level would be returned to present levels. The lake would be stocked with the appropriate amounts and ratio of bass, bluegill, redear sunfish, and channel catfish. Implementing this action would put Fort Bragg in compliance with the Federal Clean Water Act and North Carolina's Sedimentation Control Act along with the North Carolina laws and regulations regarding dam safety.

5.1.2 Effects of the Demolition Alternative. Implementing this alternative would not adversely affect land use on Fort Bragg. The lake would be drained and the dam permanently breeched. The lake basin would be reforested. The use of the lake for boating and fishing would be eliminated. However, since the lake is not intensively managed, there would not be a significant effect on recreational boating and fishing, as there are other recreational lakes available for this use on Fort Bragg. Implementing this alternative would put Fort Bragg in compliance with the Federal Clean Water Act and North Carolina's Sedimentation Control Act. The greatest effect would be the loss of the loose watermilfoil population in Hutaff Lake.

5.1.3 Effects of the No Action Alternative. Implementing this alternative would keep Fort Bragg out of compliance with the Federal Clean Water Act and North Carolina's Sedimentation Control Act as well as the North Carolina laws and regulations regarding dam safety. Further, implementing this alternative would adversely affect land use on and off post if the dam collapsed causing injury to life and damage to property. The loss of the dam would also eliminate the lake for any use of boating and fishing. However, since the lake is not intensively managed, there would not be a significant effect on recreational

boating and fishing, as there are other recreational lakes available for this use on Fort Bragg.

5.2 Air Quality.

5.2.1 Effects of the Proposed Action. Implementing this action would not adversely affect air quality on Fort Bragg. Engine exhaust and dust from vehicles and construction equipment would be transitory and limited to the immediate vicinity of the dam during the proposed action.

5.2.2 Effects of the Demolition Alternative. Implementing this alternative would not adversely affect air quality on Fort Bragg. Engine exhaust and dust from vehicles and construction equipment would be transitory and limited to the immediate vicinity of the dam during demolition of the dam.

5.2.3 Effects of the No Action Alternative. Implementing this alternative would not adversely affect air quality because the existing structure would continue to be used. Therefore, no construction activity would take place to generate air pollutants.

5.3 Noise.

5.3.1 Effects of the Proposed Action. Implementing this action would not adversely affect ambient noise levels. There would be a slight increase in noise at the site due to the use of construction equipment to upgrade the dam; however, this would be transient.

5.3.2 Effects of the Demolition Alternative. Implementing this alternative would not adversely affect ambient noise levels. There would be a slight increase in noise levels at the site due to the use of construction equipment to demolish the dam; however, this would be transient.

5.3.3 Effects of the No Action Alternative. Implementing this alternative would not adversely affect ambient noise levels because the existing structure would continue to be used. Therefore, no construction activity would take place to generate additional noise.

5.4 Geology and Soils.

5.4.1 Effects of the Proposed Action. Implementing this action would not adversely affect soil conservation goals. Soils would be disturbed as necessary for upgrading the dam; however, the general character of the soils would not be altered. Land

disturbance would be kept to a minimum. The one-acre construction site would require a State-approved Soil Erosion Control Plan. The plan takes into account that the 17-acre basin would be drained during construction. Hutaff Lake would be drained be either pumping out the water and/or eliminating the water thru and drainage system at a rate of one foot every 24 hours to minimize sloughing of upstream embankments, and sedimentation of downstream areas. A pipe will be constructed to continue the normal water flow of Stewart's Creek. Best management practices would be employed to prevent sediment traveling off site.

5.4.2 Effects of the Demolition Alternative. Implementing this alternative would not adversely affect soil conservation goals. Soils would be disturbed as necessary for demolishing the dam; however, the general character of the soils would not be altered. Land disturbance would be kept to a minimum. The seventeen-acre lake would be drained by either pumping out the water and/or eliminating the water thru the drainage system at a rate of 1-foot every 24 hours to minimize sloughing of upstream embankments, and sedimentation of downstream areas. A pipe will be constructed to continue the normal water flow of Stewart's Creek. Once Hutaff Lake is drained the dam would be permanently demolished. The exposed basin would total more than one acre; therefore, a State-approved Soil Erosion Control Plan would be required. Best management practices would be employed to prevent sediment traveling off site.

5.4.3 Effects of the No Action Alternative. Implementing this alternative would not adversely affect sedimentation downstream so long as the dam stands intact. However, the dam is categorized as high hazard and if the dam suddenly collapsed, there would be considerable damage from flooding and sedimentation in residential areas of multi-family apartments and condominiums, and single-family homes located immediately downstream along Stewart's Creek.

5.5 Water Resources.

5.5.1 Effects of the Proposed Action. Implementing this action would not adversely affect water quality downstream since care would be taken to prevent sedimentation of wetland areas and streams. Completely draining the lake during construction, upgrading the dam and refilling the lake would be accomplished in accordance with the project's State-approved Soil Erosion Control Plan.

5.5.2 Effects of the Demolition Alternative. Implementing this alternative would not adversely affect water quality downstream

since care would be taken to prevent sedimentation of wetland areas and streams. Draining the lake and demolishing the dam would be accomplished in accordance with the project's State-approved Soil Erosion Control Plan. Implementing this alternative would, however, diminish the wetlands in the areas surrounding Hutaff Lake.

5.5.3 Effects of the No Action Alternative. Implementing this alternative would not adversely affect water quality downstream of the dam so long as it stands intact. However, if the dam were to collapse, water quality would be adversely affected due to sedimentation caused by the inundation of floodwaters from the lake traveling along Stewart's Creek and its banks. Also, the wetlands in the surrounding areas of Hutaff Lake would be diminished.

5.6 Biological Resources.

5.6.1 Effects of the Proposed Action. Implementing this action would not adversely affect federally threatened or endangered species; however, Army Regulation 200-3 requires the consideration of effects on State-listed species. Potential effects to the State threatened plant species, loose watermilfoil, are unknown. The period of construction on the dam will take place as much as possible within the dormant season (31 October – 1 March) and the lake will be allowed to refill promptly to minimize impacts to this species. To mitigate possible effects to the natural population due to the dam replacement, Fort Bragg's Endangered Species Branch personnel intend to translocate a minimum of 100 individual plants to holding containers prior to construction. The following baseline information will be gathered prior to the start of construction: population size (density and area), water depth, substrate and pH. A post construction evaluation will be conducted to determine the viability of the existing population and to reevaluate the baseline data. If the natural population remains extant, previously translocated individuals will be used to augment the remaining two populations of loose watermilfoil on Fort Bragg. If the natural population is determined to have gone extinct, translocated individuals will be used to create a new population within Hutaff Lake.

5.6.2 Effects of the Demolition Alternative. Implementing this action would not adversely affect Federally threatened or endangered species. However, the State-threatened vascular plant, loose watermilfoil, would not survive without the lake.

5.6.3 Effects of the No Action Alternative. Implementing this alternative would not have significant adverse impacts upon

threatened or endangered species, as there are no Federally listed species associated with Hutaff Lake. A sudden collapse of the dam would adversely affect wildlife habitat in and around the lake because of the loss of water, and in areas downstream because of the rapid flow of floodwater from the 17-acre lake. Loose watermilfoil would not survive if the lake were lost due to the dam collapsing.

5.7 Cultural Resources.

5.7.1 Effects of the Proposed Action. Implementing this action would not adversely affect cultural resources on Fort Bragg because the dam is not historically significant and no significant resources are located near or immediately downstream.

5.7.2 Effects of the Demolition Alternative. Implementing this alternative would not adversely affect cultural resources on Fort Bragg because the dam is not historically significant and no significant resources are located near or immediately downstream.

5.7.3 Effects of the No Action Alternative. Implementing this alternative would not adversely affect cultural resources on Fort Bragg because the dam is not historically significant and no significant resources are located near or immediately downstream.

5.8 Human Health and Safety. Children reside off post in areas located immediately downstream from the dam.

5.8.1 Effects of the Proposed Action. Implementing this action would not cause significant environmental health and safety risks, thus, there would be no action that would disproportionately affect children, within the meaning of EO 13045. Upgrading the dam would eliminate the current risk of a sudden dam breech and the flooding of the downstream areas.

5.8.2 Effects of the Demolition Alternative. Implementing this alternative would not cause significant environmental health and safety risks, thus, there would be no action that may disproportionately affect children, within the meaning of EO 13045. Demolition would eliminate the current risk of a sudden dam breech and the flooding of the downstream areas.

5.8.3 Effects of the No Action Alternative. Implementing this alternative would not result in significant environmental health and safety risks that may disproportionately affect children, within the meaning of EO 13045, as children in these areas do not meet the definition. If the dam were to suddenly collapse, multi-family apartments and condominiums could be affected immediately off post. Further downstream, single family homes

could be affected. Maintaining the dam without upgrade risks a sudden breech that would drain the lake and flood the surrounding areas.

5.9 Socioeconomic Issues. Civilians live in areas located off post immediately downstream.

5.9.1 Effects of the Proposed Action. Implementing this action would cause no adverse human health, economic or environmental effects upon minority populations and low-income populations within the meaning of EO 12898 because the hazard of a dam breech would be eliminated.

5.9.2 Effects of the Demolition Alternative. Implementing this alternative would not cause disproportionately high and adverse human health, economic or environmental effects upon minority populations and low-income populations within the meaning of EO 12898, as a potential hazard would be eliminated when the dam is demolished.

5.9.3 Effects of the No Action Alternative. Implementing this alternative would not cause disproportionately high and adverse human health, economic or environmental effects upon minority populations and low-income populations within the meaning of EO 12898, because populations located downstream do not meet the definition.

5.10 Cumulative Effects. The project would upgrade the dam, maintaining the existing character of the site in the long term. In the near term, the lake would be completely drained to allow the work to proceed, and then allowed to refill. There are no similar projects nearby. Taken together the cumulative effects of this project are too small to be significant. Therefore, they would not significantly affect the quality of the human environment.

5.10.1 Effects of the Proposed Action. Implementing this action would not cause significant cumulative effects because the dam would be upgraded, thereby avoiding potential damage resulting from a sudden collapse of the dam.

5.10.2 Effects of the Demolition Alternative. Implementing this alternative would not cause significant cumulative effects because, although the dam would be demolished, the land would be reforested.

5.10.3 Effects of the No Action Alternative. Implementing this alternative could cause significant cumulative effects for soil

erosion, water quality, and wildlife habitat located downstream in the event of a dam breech.

Section 6.0: CONCLUSION.

6.1 Findings. Based on a review of the information contained in this EA, which was prepared under consultation with cultural resources, environmental compliance, soil conservation, natural resources, wildlife, and training managers at Fort Bragg, I have determined that the Hutaff Lake dam upgrade project on Fort Bragg in Cumberland County, North Carolina, would not constitute a major federal action significantly affecting the quality of the human environment within the meaning of Section 102(2)(c) of the National Environmental Policy Act. Accordingly, preparation of an Environmental Impact Statement is not required. A draft Finding of No Significant Impact will be released to announce this conclusion to the public, and afford them an opportunity to comment on the Proposed Action before I render my final decision.

6.2 Measures Taken in Mitigation. In order to mitigate the potential for adverse environmental impacts at Hutaff Lake, Fort Bragg would conduct upgrades in compliance with all applicable construction standards and environmental regulations. Stringent attention would be paid to soil erosion control in order to prevent sedimentation of downstream waters. A State approved Soil Erosion Control Plan would be required.

Section 7.0: AGENCIES, PERSONS, AND LITERATURE CONSULTED.

7.1 Agencies.

Headquarters, Fort Bragg Garrison Command (Airborne),
Installation Management Agency, Fort Bragg, NC
Office of the Staff Judge Advocate.
Public Works Business Center.
Readiness Business Center.

N.C. Department of Cultural Resources
State Historic Preservation Office

N.C. Department of Environment and Natural Resources

7.2 Persons.

Aycock, A., Colonel, Garrison Commander, Fort Bragg Garrison Command (Airborne), Installation Management Agency, Fort Bragg, NC.

Bean, G.G., Colonel, Director of Public Works Business Center, Fort Bragg Garrison Command (Airborne), Installation Management Agency, Fort Bragg, NC.

Bebb, S., Wildlife Biologist, Wildlife Branch, Public Works Business Center, Fort Bragg Garrison Command (Airborne), Installation Management Agency, Fort Bragg, NC.

Blalock, D., Captain, U.S. Army, Office of the Staff Judge Advocate, Headquarters, XVIII Airborne Corps, Fort Bragg, NC.

Combs, C.P., Senior Code Enforcement Administrator (Zoning), City of Fayetteville Inspections Department, Fayetteville, North Carolina.

Cook, T.D., Lieutenant Colonel, U.S. Army, Acting Staff Judge Advocate, Headquarters, XVIII Airborne Corps, Fort Bragg, NC.

Curran, E.A., Captain, U.S. Army, Office of the Staff Judge Advocate, Headquarters, XVIII Airborne Corps, Fort Bragg, NC.

Davis, A.D., IV, Colonel, U.S. Army, former Garrison Commander, Fort Bragg Garrison Command (Airborne), Installation Management Agency, Fort Bragg, NC.

Dunn, M., Colonel, U.S. Army, Staff Judge Advocate, Headquarters, XVIII Airborne Corps, Fort Bragg, NC.

Gray, J.B., Botanist, Endangered Species Branch, Public Works Business Center, Fort Bragg Garrison Command (Airborne), Installation Management Agency, Fort Bragg, NC.

Heins, D.A., Chief, Environmental Sustainment Division, Public Works Business Center, Fort Bragg Garrison Command (Airborne), Installation Management Agency, Fort Bragg, NC.

Hoffman, E.L., Wildlife Biologist, Environmental Sustainment Division, Public Works Business Center, Fort Bragg Garrison Command (Airborne), Installation Management Agency, Fort Bragg, NC.

Irwin, J.D., Archaeologist, Environmental Sustainment Division, Public Works Business Center, Fort Bragg Garrison Command (Airborne), Installation Management Agency, Fort Bragg, NC.

Lantz, J.C., Soil Conservationist, Environmental Sustainment Division, Public Works Business Center, Fort Bragg Garrison Command (Airborne), Installation Management Agency, Fort Bragg, NC.

Myers, T.L., Chief, Endangered Species Branch, Natural Resources Division, Public Works Business Center, Fort Bragg Garrison Command (Airborne), Installation Management Agency, Fort Bragg, NC.

Sands, A.L., Environmental Analyst, ECW Environmental Group, LLC, Environmental Sustainment Division, Public Works Business Center, Fort Bragg Garrison Command (Airborne), Installation Management Agency, NC.

Shelton, D.K., First Lieutenant, U.S. Army, Office of the Staff Judge Advocate, Headquarters, XVIII Airborne Corps, Fort Bragg, NC.

Whitley, G.F., Civil Engineer, Construction Management Division, Public Works Business Center, Fort Bragg Garrison Command (Airborne), Installation Management Agency, Fort Bragg, NC.

7.3 Literature. This EA incorporates by reference the following documents:

Air Installation Compatible Use Zone Study: A Report to the Government and Citizens of the Pope Air Force Base Environs, Pope AFB, NC, 1990.

Army Regulation 200-1, Environmental Protection and Enhancement, Department of the Army, Washington, DC, 1997.

Army Regulation 200-2, Environmental Effects of Army Actions, as amended by 32 CFR Part 651 (29 March 2002), Department of the Army, Washington, DC, 1988.

Army Regulation 200-3, Natural Resources - Land, Forest and Wildlife Management, Department of the Army, Washington, DC, 1995.

Army Regulation 200-4, Cultural Resources Management, Department of the Army, Washington, DC, 1998.

Biological Assessment of Fort Bragg and Camp Mackall Endangered Species Management Plan, XVIII Airborne Corps and Fort Bragg, Fort Bragg, NC, 1996.

Dam Safety Law of 1967 (as amended through 1995). North Carolina Department of Environment and Natural Resources, Raleigh, NC, 1967.

Endangered Species Act of 1973 (as amended), U.S. Fish and Wildlife Service, Washington, DC, 1988.

Environmental Assessment and Finding of No Significant Impact, Endangered Species Management Plan, XVIII Airborne Corps and Fort Bragg, Fort Bragg, NC, 1997.

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations, 1994.

Executive Order 13045, Environmental Health and Safety Risk Upon Children, 1997.

Explosive Ordnance Disposal, Forces Command, 1986.

Field Safety Checklist, XVIII Airborne Corps and Fort Bragg, Fort Bragg, NC, 1987.

Fort Bragg and Camp Mackall Endangered Species Management Plan, XVIII Airborne Corps and Fort Bragg, Fort Bragg, NC, 1996.

Fort Bragg East Military Installation Map, RCW Overprint 1998, 1:50,000 Map, Fort Bragg, NC.

Fort Bragg Forest Management Plan, XVIII Airborne Corps and Fort Bragg, Fort Bragg, NC, 1993.

Fort Bragg Integrated Cultural Resources Management Plan, XVIII Airborne Corps and Fort Bragg, Fort Bragg, NC, 2001.

Fort Bragg Integrated Natural Resources Management Plan, XVIII Airborne Corps and Fort Bragg, Fort Bragg, NC, 2001.

Fort Bragg Real Property Master Plan, XVIII Airborne Corps and Fort Bragg, Fort Bragg, NC, 1994.

Fort Bragg Regulation 200-1, Fort Bragg Environmental Program, XVIII Airborne Corps and Fort Bragg, Fort Bragg, NC, 1996.

Fort Bragg Regulation 350-6, Post Range Regulation, XVIII Airborne Corps and Fort Bragg, Fort Bragg, NC, 1995.

Fort Bragg Regulation 420-11, Hunting and Fishing Regulation, XVIII Airborne Corps and Fort Bragg, Fort Bragg, NC, 1996.

Fort Bragg Leader's Environmental Handbook, XVIII Airborne Corps and Fort Bragg, Fort Bragg, NC.

Fort Bragg Soldier's Environmental Handbook, XVIII Airborne Corps and Fort Bragg, Fort Bragg, NC.

Fort Bragg Training and the Environment, Environmental Guide, XVIII Airborne Corps and Fort Bragg, Fort Bragg, NC.

Installation Compatible Use Zone Study, Fort Bragg, North Carolina, A Report for the Governments and Citizens of the Fort Bragg Area, U.S. Army Corps of Engineers, Savannah, GA, 1989.

Management Guidelines for the Red-Cockaded Woodpecker on Army Installations, Headquarters, Department of the Army, Washington, DC, 1996.

National Environmental Policy Act of 1969 (as amended), U.S. Environmental Protection Agency, Washington, D.C., 1975.

Soil Survey of Cumberland and Hoke Counties, North Carolina, U.S. Department of Agriculture, Soil Conservation Service, Washington, D.C., 1984.

DEPARTMENT OF THE ARMY
PUBLIC WORKS BUSINESS CENTER
FORT BRAGG GARRISON COMMAND (AIRBORNE)
INSTALLATION MANAGEMENT AGENCY
FORT BRAGG, NORTH CAROLINA

DRAFT
FINDING OF NO SIGNIFICANT IMPACT

UPGRADING HUTAFF LAKE DAM
FORT BRAGG MILITARY RESERVATION, NORTH CAROLINA

1. Proposed Action. The Army proposes to upgrade the dam at Hutaff Lake.

2. Description of Alternatives. Two alternatives to the Proposed Action were considered. These were the Demolition Alternative of draining the lake and demolishing the dam, and the No Action Alternative of retaining the dam without upgrade. The No Action Alternative provides the baseline for forecasting the effects of adopting the Proposed Action.

3. Anticipated Environmental Impacts. Implementing the proposed action would eliminate a hazard to public safety without causing significantly adverse affect the post's biological, cultural, physical, social or economic resources.

4. Conclusion. Based on a review of the information contained in the project's Environmental Assessment, I have determined that upgrading Hutaff Lake Dam on Fort Bragg, North Carolina, would not constitute a major Federal action significantly affecting the quality of the human environment within the meaning of Section 102(2)(c) of the National Environmental Policy Act. Accordingly, preparation of an Environmental Impact Statement is not required. Therefore, the draft Finding of No Significant Impact (FNSI) is being made available for public review and comment for 30 days. A final decision would be rendered upon review and due consideration of the comments received.

5. Effective Date. The proposed project would be constructed in 2003.

6. Public Availability. The Environmental Assessment and this draft FNSI for the Proposed Action are available for public inspection at the Cumberland County Public Library in Fayetteville, the Post Library and Command Information Center, Fort Bragg, North Carolina, and online at http://www.bragg.army.mil/envbr/nepa_review.htm.

7. Requests for additional information or submittal of written comments may be made within 30 days after first publication date to Public Works Business Center, Headquarters, Fort Bragg Garrison Command (Airborne), Installation Management Agency, ATTN: AFZA-PW-E, Fort Bragg, NC 28310.

AL AYCOCK
COL, SF
Garrison Commander

DEPARTMENT OF THE ARMY
PUBLIC WORKS BUSINESS CENTER
FORT BRAGG GARRISON COMMAND (AIRBORNE)
INSTALLATION MANAGEMENT AGENCY
FORT BRAGG, NORTH CAROLINA

NEWS RELEASE

UPGRADING HUTAFF LAKE DAM
FORT BRAGG MILITARY RESERVATION, NORTH CAROLINA

Fort Bragg announces the release of an Environmental Assessment and draft Finding of No Significant Impact concerning a proposal to upgrade the dam at Hutaff Lake.

Two alternatives to the Proposed Action were considered. These are the Demolition Alternative of draining the lake and demolishing the dam, and the No Action Alternative of retaining the dam without upgrade. The No Action Alternative provides the baseline for forecasting the effects of adopting the Proposed Action.

Implementing this action would eliminate a hazard to public safety without adversely affecting the post's biological, cultural, physical, social or economic resources. Implementing the Proposed Action is environmentally acceptable.

Requests for further information or submittal of public comments may be made within 30 days after first publication date to Public Works Business Center, Headquarters, Fort Bragg Garrison Command (Airborne), Installation Management Agency, ATTN: AFZA-PW-E, Fort Bragg, NC 28310.

APPENDICES

A – Area Map
B – Wetland Impact Area
C – RCW and Loose Watermilfoil Locations
D – Informal Consultation

APPENDIX A

Area Map

Area Map

0 500 1,000 2,000 3,000 4,000 Meters

N

Legend

- Hutaff Lake
- Rivers & Streams
- Fort Bragg Boundary
- Training Areas
- Impact Areas
- Landing Zones
- Ranges
- Artillery Firing Positions

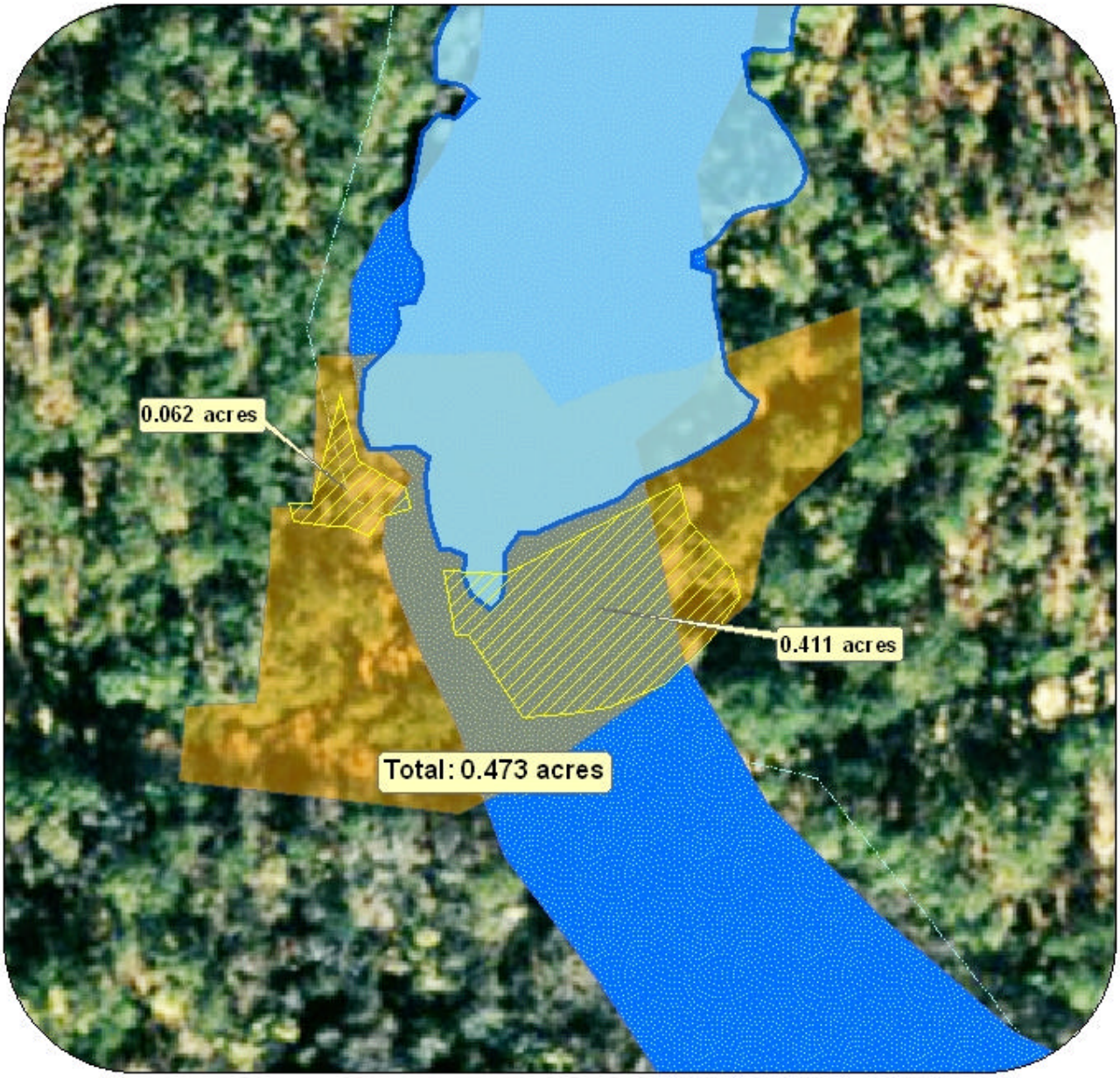
Artillery Impact Areas
BRAGG-ID
- 105MM
- 155MM

Area Map
Upgrading Hutaff Lake Dam
Source: M:/Arc/masterCantonment.mxd
Projection Ratio: 1:59,345
Prepared By: Amy Sands

APPENDIX B

Wetland Impact Area

Wetland Impact Area



0 12.5 25 50 75 100 Meters

N

Legend

- Wetland Impact Area
- Project Area
- Wetlands
- Hutaff Lake
- Rivers & Streams

Wetland Impact Area
Upgrading Hutaff Lake Dam
Source: M:/Arc/masterCantonment.mxd
Projection Ratio: 1:1,245
Prepared By: Amy Sands

APPENDIX C

RCW and Loose Watermilfoil Locations

RCW and Loose Watermilfoil Locations

Meters
0 205 410 820 1,230 1,640

N

Legend

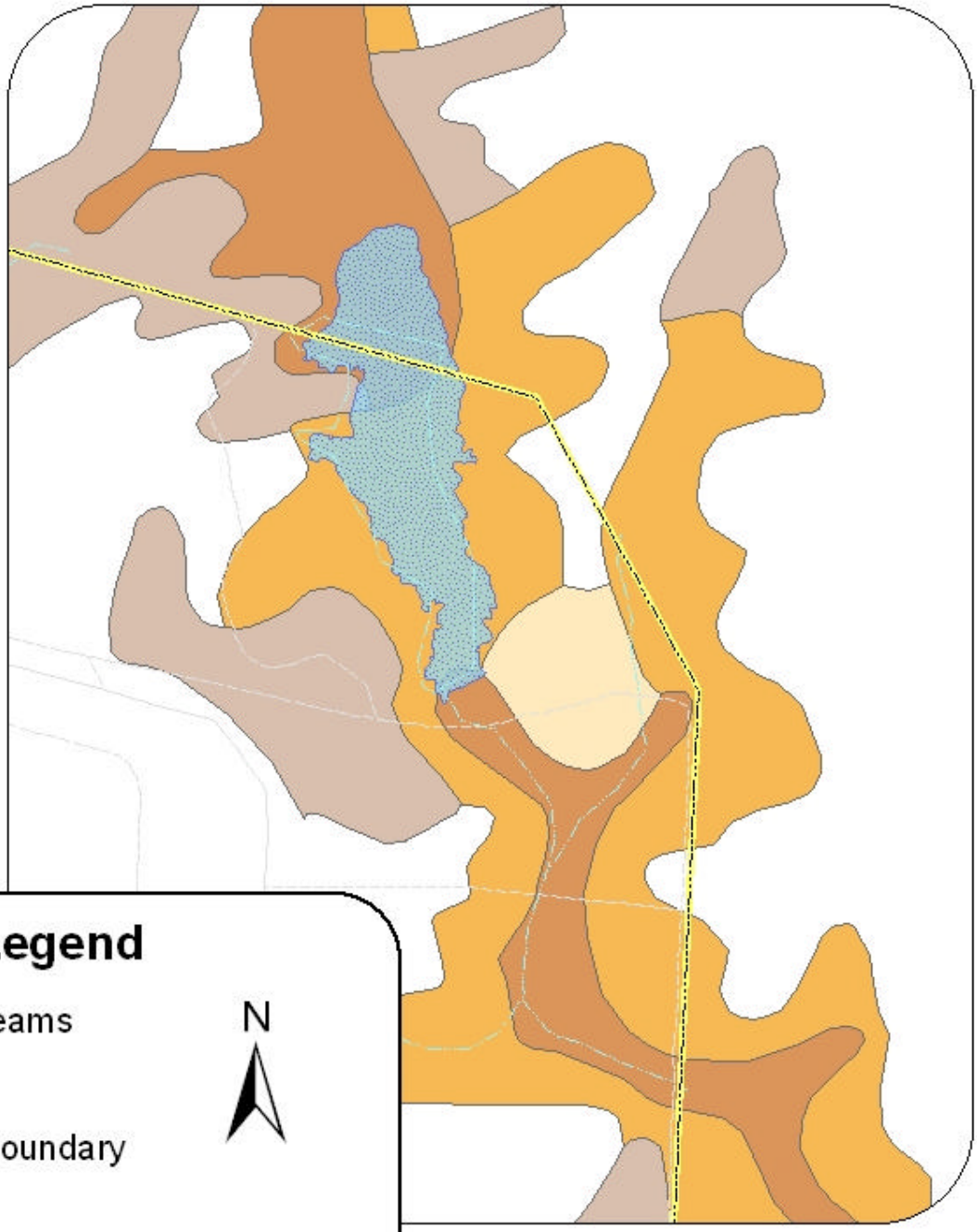
- RCW Forage Partitions
- RCW Clusters
- RCW Trees
- Loose Watermilfoil
- Hutaff Lake
- Fort Bragg Boundary

RCW and Loose Watermilfoil Locations
Upgrading Hutaff Lake Dam
Source: M:/Arc/masterCantonment.mxd
Projection Ratio: 1:18,590
Prepared By: Amy Sands

APPENDIX D

Dominant Soils

Dominant Soils



Legend

- Rivers & Streams
- Hutaff Lake
- Fort Bragg Boundary

N

Dominant Soils

DESCRIPTION

- Blaney Loamy Sand 8-15% Slopes
- Candor Sand 1-8% Slopes
- Johnston Loam
- Vaucluse Loamy Sand 8-15% Slopes

0 70 140 280 420 560 Meters

Dominant Soils
Upgrading Hutaff Lake Dam
Source: M:/Arc/masterCantonment.mxd
Projection Ratio: 1: 8,740
Prepared By: Amy Sands

APPENDIX E

Informal Consultation

ICDENR
CHAEL F. EASLEY
OVERNOR
ILLIAM G. ROSS, JR.
CRETARY
HARLES GARDNER
RECTOR

DIVISION OF LAND RESOURCES
FAYETTEVILLE REGIONAL OFFICE

NOTICE OF INSPECTION

DIVISION OF LAND RESOURCES
LAND QUALITY SECTION

March 5, 2001

PWBC Business Center
Attn: Bill Lewis
AFZA-PW-M
Fort Bragg, North Carolina 28307-5000

RE: Hutaff Lake Dam
No. 26016
Scotland County, North Carolina
River Basin: Cape Fear

Dear Mr. Lewis:

The "Dam Safety Law of 1967," as amended, provides for the certification and inspection of dams in the interest of public health, safety, and welfare, in order to reduce the risk of failure of such dams; to prevent injuries to persons, damage to property; and to insure the maintenance of stream flows.

Our records indicate you are the owner of the referenced dam which is located off Morganton Road. This dam was inspected on March 2, 2001 by personnel of the Land Quality Section. This inspection revealed the conditions outlined below:

1. Trees and bushes are growing on the dam. This type of growth can cause problems and even failure of the dam by creating holes when trees are uprooted due to wind or ice; by leaving possible seepage holes when trees die and their roots decay; and by causing erosion of the dam around this growth should the dam overtop during heavy rains. Therefore, we recommend that this type of growth be removed and a good grass cover be established on the dam.

   Though it is not our policy to allow any trees to grow on a dam, it is recommended that all trees greater than six inches in diameter be left on the dam and all other trees be removed. Trees larger than six inches in diameter that are in poor shape or pose a threat to the structural integrity of the dam and need removal requires an engineers supervision and prior approval from this office. Note that all cut growth should be removed from the dam.

2. The primary spillway riser pipe appeared to be partially clogged. This condition can cause erosion problems in the emergency spillway by increasing its use. We recommend that the riser pipe be unclogged and a suitable trash guard be installed to prevent future clogging. The design and installation of the trash guard requires an engineers supervision and prior approval from this office.

3. Flow from the lake has run around the emergency spillway weir and undermined the concrete apron of the emergency spillway. This erosion is usually progressive in nature and if allowed to continue may even erode into the dam itself. Be advised that repairs to the emergency spillway require an engineers design and supervision and approval from this Department before any work can be done.

In addition, the following items pertinent to the maintenance and operation of the dam are recommended.

1. Maintain a ground cover sufficient to restrain accelerated erosion on all earthen portions of the structure.

2. Periodically remove trees less than about six inches in diameter and thick undergrowth from the slopes and crest of the dam. This will serve to (A) prevent the formation of a root system which might significantly increase seepage through the dam which could ultimately result in failure of the structure, (B) reduce the possibility of damage to the dam due to the uprooting of trees by wind or other natural causes, and (C) facilitate ease of inspection and increase the likelihood of early detection of more serious problems connected with the dam.

3. Periodically remove all trees from the emergency spillway. This will reduce the possibility of its capacity being reduced by the entrapment of debris, should it become active.

4. Periodically check the operation of all drain valve facilities. This will insure satisfactory operation of the drains should an emergency situation arise.

5. Periodically monitor the subject dam and appurtenant works with respect to elements affecting its safety. This is in light of the legal duties, obligations, and liabilities arising from the ownership and/or operation of a dam.

During this inspection we also investigated the potential for property damage and loss of life in the event that your dam fails. This investigation determined that failure of your dam could result in severe property damage and/or possible loss of life downstream. Therefore, we are listing your dam in the "High Hazard" category.

Also be advised that any excavations in this dam or major repair work to this dam must be approved by this Office before any work is done. Also, note that this dam may not be breached, meaning the dam may not be drained by cutting a notch in the dam, without prior engineered breach plans being submitted to and approved by this Department.

Please be advised that though we make every reasonable effort to determine the safety of your dam, our resources limit us to surficial inspection. There is no certainty regarding the internal stability of the dam. Dams, and especially their spillways and conduits, deteriorate with age. Therefore, you are advised to keep a close watch on your dam and to notify us if you detect any changes, especially cracks, ground movements, or changes in seepage rate or color.

Because of the importance of maintaining a safe dam, the deficiencies noted above must be corrected by January 2, 2002. Your cooperation and consideration in maintaining a safe dam is appreciated. If ownership of the dam has changed, or if you are not responsible for the dam, please notify us so that we can update our records. Should you have any questions concerning our inspection, please contact me at (910) 486-1541.

Sincerely,

William E. Vinson, Jr., P.E.
Regional Engineer, Land Quality Section

TV\lw
cc: Jim Leumas, P.E.

COMMENTS RECEIVED